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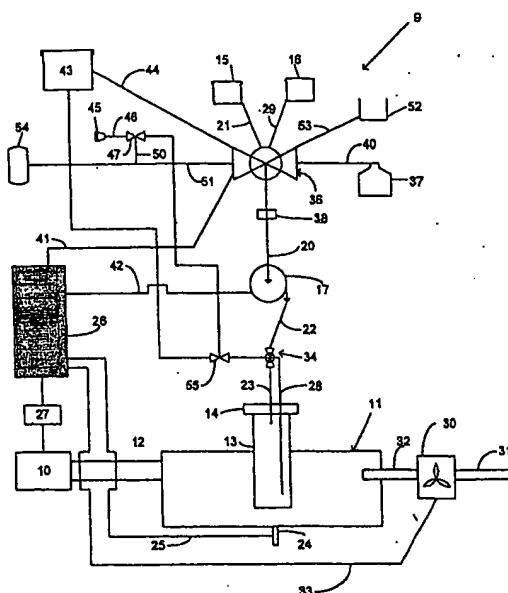
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(54) Controlled flow instrument for microwave assisted chemical process

(57) A controlled-flow microwave instrument is disclosed for chemical synthesis using heterogeneous or highly viscous starting materials. The instrument includes a microwave source (10) for generating electromagnetic radiation in the microwave frequencies, a microwave cavity (11) in wave communication with the source for exposing compositions placed therein to microwave radiation, a microwave-transparent pressure resistant reaction vessel (13) in the cavity, a source reservoir (15) for starting materials and related compositions, a pump (17) in communication with the source reservoir for pumping heterogeneous or highly viscous materials from the source reservoir to the reaction vessel, and a pressure-resistant valve (34) between the pump and the reaction vessel for isolating the reaction vessel from the pump and the source reservoir during application of microwave energy to compositions in the vessel and from any resulting high pressures generated therein.

Figure 1



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